

THE EFFECTS OF CLIMATE CHANGE ON THE SEDIMENT YIELD IN MOUNTAINOUS AREAS

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A change in the mean and variability of some variables of the climate system is expected to affect the sediment yield of mountainous areas in several ways: soil temperature change, permafrost thawing, snowmelt and ice melt time shifting may be listed as some of the potential causes. The sensitivity of sediment yield estimates to a change of condition of the climate system may be investigated through the application of different models, each characterized by its own features and limits. Sensitivity analysis are here presented with reference to two case studies. For the first one the sediment yield of a small mountainous basin is dealt with the Universal Soil Loss Equation approach. In the second one the physically based WEPP model is applied to estimate the sediment yield on vegetated steep slopes, before and after a wildfire. On the basis of the results of these analyses some general considerations are drawn.

Keywords: water erosion, sediment yield, climate sensitivity analysis, empirical and physically based approach